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SUBORDER	FAMILY	GENERA	SPECIES
CHIONIDES	Chionididæ	Chionarchus Chionis	C. minor. C. alba.

Such a suborder would probably stand between my suborder Longipennes and the suborder Limicolæ, and there probably would be added to the Chionididæ, the three other families Dromadidæ, Attagidæ, and Thinocorythidæ. But with what I know of the osteology of *Chionis minor* and of *Hæmatopus*, and not having examined the entire structure of any of the three families first named, such a proposal must be considered wholly provisional. A knowledge of the entire morphology of all these forms is something very much to be desired.

OUR SCOTERS.

BY G. TRUMBULL.

IN an article under the above title printed in 'The Auk' of April, 1892, I called attention to numerous errors which had appeared concerning our representatives of the genus *Oidemia*. It was my intention at the time to continue the list of such errors in this second (and in a third) article, but I abandon the idea. Such a continuance would occupy altogether too much space. I give the facts which I have ascertained, with only occasional reference to the failures of former accounts.

Though difficult to conceive how some of the mistakes ever crept into print, it is easy to imagine how others occurred, viz., by the absence of fresh specimens; by compiling, with phraseologic variation, from earlier accounts of more or less credibility; by studying faulty pictures; by mistaking immaturity for maturity; by unhappy inferences; and by a desire, latent or active in us all, to appear at least a little wiser, a little more experienced than we really are.

As such common fowl as these have been so much and so long misrepresented, is it not reasonable to infer that numerous other species have been similarly treated, that there is a great deal of work for the reviser? Would it not be better for ornithologists to go back over the old road, before continuing their investigation of pastures new? The science has grown and will continue to grow chiefly from the examination of dried skins. This, though unfortunate, is practically unavoidable; but is it well that the results of such study should be confounded, as they commonly are, with facts obtained from the living creatures, or from their bodies intact as they lived? One is the study of birds, the other of their fleshless, discolored and distorted remains.

While noting the colors of the bills and feet, I have used — though I have not in every case adopted its terminology — Mr. Ridgway's 'Nomenclature of Colors.' Though the process by which his examples are printed has in many cases produced unhappy results, the volume is nevertheless a most useful medium of communication between writers and readers. No matter how familiar one may be with color and color terms, it is highly important, absolutely essential, to have at hand some such labeled series of tints for immediate comparison and future reference.

Before beginning with *deglandi* I must add to my former account of *americana* (Auk, Vol. IX, pp. 153-155), as I have secured a specimen the feet and bill of which are different from any I had seen prior to that writing.

Oidemia americana.

Young male.¹ Plumage — compared with previously described phases — similar to that of "young male in autumn," but lower surface of body whiter, or about as in "young female in spring," with the exception of being less positively spotted. Shape of bill about as in female, but beginning of 'hump' slightly indicated, viz., upper half of maxilla at base broader than in earlier youth: pushed outward at sides noticeably, the culmen, however, remaining as before. Color of bill black, paler in part, changing here and there to olive yellow or yellowish olive, the inside of the nostrils brighter and more yellow. Feet: outer side of tarsus and

¹ Killed Oct. 16, 1892.

outer side of outer toe dull dusky green; inner side of tarsus, both sides of inner and middle toes and inner side of outer and hind toes dark olive, changing to wax yellow; blackish shading at joints and elsewhere; the outer side of the hind toe almost uniformly blackish;¹ webs solidly black.

I am not sure just how long it takes for either of our *Scoters* to mature, and I will not hazard a guess. Features that we regard as indicative of perfection, may in reality be marks of decline. I feel pretty sure, however, that those drakes (of *deglandi*, the species now in hand) which have the brightest beaks, the most fully opened nostrils, the most cleanly white speculums, the whitest eyes surrounded by the whitest edgings and the largest eye-patches, represent very nearly or quite the fulness of maturity. And I am strongly inclined to believe that after the male and female have once reached maturity, there is little or no seasonal change: that when, for example, the male's plumage has become uniformly black, it remains black evermore; that the perfected colors of the bill and feet are fast colors.

Though we can determine very satisfactorily the comparative ages of specimens, by taking all parts into consideration, the size, as an indicator, is of little value. Several of the larger dimensions which I have noted were taken from birds not fully mature, while some of the smaller measurements are from undoubted adults.

In my former article I referred to two accounts which represent the bill of the *deglandi* drake as red, and simply red,—with the exception of the black portion. I could not imagine at the time how the error occurred. I have since discovered that the purple and orange, and even the white, of nearly mature males, sometimes change within three or four days after death, to an almost uniform purplish red. The descriptions referred to were doubtless taken from such stale specimens. I am careful to say "nearly mature" males, for in such birds only have I observed this change. The fully perfected colors seem to be at least a little more permanent.

¹ The term hind toe in my description of this and the other *Scoters* is intended to stand (when not otherwise explained) for both the toe itself and its broad membranous flap.

Oidemia deglandi.

Frontal feathering—in most cases—reaching farther forward than the loral feathering. Sometimes the two extensions are equal, and sometimes (I have only observed it in the case of two young females) the loral feathering is advanced the merest trifle farther than the frontal. The frontal feathering generally terminates (sometimes acutely, sometimes obtusely) nearly on a line with the posterior edge of the nostril, sometimes reaching beyond, sometimes falling short.¹

Speculum, composed of secondaries and ends of greater coverts, white. In immature birds the black (of the male) or brown (of the female) infringes a little at either end of the snowy area, showing also on the tips of the greater coverts, and narrowly at the ends of the secondaries; but in all the plumages of both the sexes this speculum is very conspicuously large and white. Its dimensions, while the wing is fully spread, are about as follows: length 5.50 to 6.50 inches; width at one end (by the primaries) 2.75, at the other end (by tertaries) 1.75 to 2.00.

Under surface of wing: a mixture, varying considerably according to age: in the male, from brown, gray and white (young), to black, brown, gray and white (adult); in the female, brown, gray and white.

Eyes: those of all the females, and of the young males designated by letters A, B and C, deep brown.

Feet: outer and inner sides differing about as follows: in adult male, outer side of tarsus and outer side of outer toe one color; inner side of tarsus, inner side of all four toes and outer side of inner toe another color; both colors showing on outer side of middle toe. In nearly adult male: outer side of middle toe showing only outer color of tarsus; this color also showing more or less on outer side of inner toe. Though there are similar variations in the younger males and in the females, they are too faintly marked for comment. These colors of the feet are always, in both sexes, old and young, more or less broadly obscured at joints and elsewhere by black or blackish shading; the outer side of the hind toe (or outer side of its flap) almost or quite uniformly black or blackish. Webs uniform black. In the adult male the black of webs and shading of feet, inky black; in the female and young male, less intense or dull black.

Dimensions.—Male: length 21.00–22.75 inches; extent 37.25–41.50; wing 10.88–12.12. Female: length 19.62–20.75; extent 35.88–37.88; wing 10.62–11.12.

¹ Former accounts are not wholly in accord about these extensions. I copy some of the characters attributed to the sub-genus *Melanitta* (or *Melanetta*) in which this species is placed. One authority says: "Feathers of side of bill extending obliquely forward from the angle of the mouth as far as those above." On another page of the work cited we read that the feathering extends "nearly as far forward on the side of the bill as above." Another and later author says: "Feathering of head advancing much farther forward on lores than on forehead"; but he gives us a drawing of the bill in which the frontal feathers are considerably in advance of the loral.

Weight. — Male: three pounds eight ounces to four pounds nine ounces.
Female: two pounds twelve ounces to three pounds seven ounces.
(I have measured and weighed nearly a hundred specimens.)

ADULT MALE.

Plumage black, inclining a little to brown along the upper part of the sides¹; a pure white patch below and behind the eye, beginning at front edge of eye and sweeping backward with an upward curve; the eye also completely edged with this white (see fig. 9); upper portions of plumage showing a faint iridescence which tends to green and plum color, the latter tint confined chiefly to the head and neck. Iris white. Bill (figs. 9 and 12): upper mandible immediately at base black, this black spreading forward over the knob and continued along the edge, sometimes as far as the nail, and sometimes disappearing brokenly before reaching it; sides pinkish purple or wine purple,² changed to orange next to the basal black; the nail reddish orange; from nail to knob white, the middle of the bill, in other words, being broadly white from the nail to the black between the nostrils; lower mandible with a patch of reddish orange at the end, including the nail, and back of this color white, the white meeting irregularly with basal black, which is extended in a somewhat varying degree toward the gony. Feet: outer side wine purple (of a rather light shade and sometimes tending a little toward magenta); inner side coral red or orange-vermilion.³

ADULT FEMALE.⁴

Plumage chiefly dark brown, deepening on upper portions here and there to blackish brown, the brown of the lower surface of the body somewhat lighter and nearly uniform; side of head and the throat streakily and minutely flecked with dull whitish, most noticeably perhaps on the front of the lores, but nowhere forming a 'spot' or 'patch'; most of the neck uniformly brown; the feathers of jugulum, front of neck, scapular region, and sides of body, edged at their ends with

¹ Though I have long believed that this brown wholly disappears, I have not yet found a specimen that did not show some of it. It is completely hidden when the wings are closed.

I have shot none of these adults in June and July, but in all the other months I have found them similar in appearance to those used in this description.

² This color would be better matched if some of the "heliotrope purple" (see Ridgway's plate VIII) were mixed with the "wine purple."

³ I note the omission of a word from former description of these feet ('The Auk,' April, 1892, p. 157). For "side of tarsus and toes" read "outer side of tarsus and toes."

⁴ Described from specimens killed Jan. 19 and April 22.

drab-gray. Bill (fig. 4): upper mandible grayish black, the nail striped lengthwise black and brownish yellow; a somewhat spotty and whitish mixture between nail and nostrils; a well defined and showy patch of deep rose pink or light geranium pink on the side (position of patch shown by fig. 7); lower mandible black, more or less whitish or light gray about the gonyx, the nail like its fellow above. Feet: outer side vinaceous, greatly obscured by the black shading; inner side vinaceous rufous.

IMMATURE FEMALES.

A.¹ Almost uniformly blackish brown, the ends of the feathers a trifle lighter than other portions, but not noticeably so; the nape and upper part of head brownish black; an imperfect auricular patch formed by streaky flecks of white; a few scattering flecks of white on the breast. Bill (fig. 2) almost wholly grayish black, but lighter or gray in part, not the least suggestion of the adult female's pink patch; the shape of the bill also very different. Feet: outer side chocolate, inner side as in adult female.

B.² Differing from first young female as follows: somewhat lighter, less uniformly dark, the light ends of the feathers a little more pronounced, the front and side of the head flecked with brownish white, these flecks distributed scatteringly, not accumulate in auricular region, most numerous immediately about the bill.

C.³ Plumage nearly as in maturity, but having a few flecks of white on the breast, and the light flecks of the head whiter and tending to blotchy accumulation here and there, particularly on the cheeks. Bill (fig. 3): color about as in females A and B; frontal feathering terminating as in the adult, or more acutely than in the younger birds. Color of feet not noted.

IMMATURE MALES.

A.⁴ Similar to young female A, but lower surface of body somewhat lighter and grayish—in some specimens grayish brown, in others brownish gray—and with the white flecking of the head forming a positive auricular patch; there is also a faint, imperfectly defined loral spot or patch, sometimes pale grayish brown, sometimes more whitish. Upon closer inspection the loral marking is dull white, dotted with brown, the whole shading softly into the uniform brown about it. Bill (fig. 1) deep

¹ Described from specimens killed Oct. 21 and 22.

² Described from specimens killed Feb. 18 and 19.

³ Described from specimens killed April 24.

⁴ Described from specimens killed Oct. 17 and 21.

gray with black shading, the gray of the sides having a faint lavender cast. Feet similar to those of young females A and B, but lighter.

The descriptions of female A and male A represent the young during their first autumn, and this young male corresponds probably about as well with Herbert's '*bimaculata*' as any bird we shall ever find.

B.¹ Plumage very similar to adult female, with following exceptions: somewhat lighter on front of forehead and lores; lower surface of body decidedly whitish, — broadly so from jugulum to legs, — or white faintly spotted with brownish gray, shading to a more uniform, more brownish and deeper tint toward the tail; the rectrices with buff or pale brown tips. Bill: in shape about as in younger male; in color somewhat as in adult female, but light stripes of nail more reddish; pink at sides obscure, much darker, duller, less uniform. Feet as in young male A.

C.² Differing decidedly from young male B; upper parts both lighter and darker, presenting a much more variegated appearance; light brown and gray feathers with whitish edgings at their ends, contrasting strongly with others of brownish black; many of the pallid ends worn and ragged; greater part of head and neck darker, more blackish; the forehead and lores noticeably speckled with brownish white; tail more extensively "buff or pale brown" (looking dead, dry and ready for renewal, like many of the other feathers); lower surface of body less whitish, pale gray faintly spotted with grayish brown on the breast, and changing to an almost uniform grayish brown posteriorly; jugulum brownish black, broken into irregularly by the light color of the breast. Bill (fig. 6) a trifle more swollen; chiefly grayish black, lighter and more grayish in part; the nail streakily blackish and gray at its root; the pinkish color of the sides still more obscure, barely indicated. Feet about as before.

D.³ Plumage with much more black, the black showing extensively over the upper parts (particularly about head, neck, tertaries, primaries, and tail coverts), the bird being still more brown than black, however; the ends of the brownish feathers somewhat lighter than the rest, but nowhere noticeably so; front of forehead and lores minutely freckled with grayish buff; eye-patch beginning to appear, very short, continued only a very little behind the eye, and dull brownish white, the eye also edged, though not continuously, with this white; lower plumage almost uniform brown, deepening to black about jugulum and crissum. Iris nearly white. Bill (figs. 5 and 8) much more like the adult drake's — differing from it as follows: knob lifted less abruptly; nostrils much less open; basal black of maxilla broader, continued very positively all along the edges and spreading out in front at the sides of the nail; the white field less cleanly white and wholly separated from the purple at each side by a

¹ Described from specimens killed May 4 and 5.

² Described from specimens killed April 22 and May 4.

³ Described from specimen killed May 3.

line of black¹; black of lower mandible continued broadly along lateral edges to the front, the rami wholly black to within about .40 inch of the nail. Feet: outer side approaching unevenly the color of more mature male E; the inner side still as in the younger males.

E.² Plumage much more black than brown, the head, neck, wings, rump and tail coverts almost wholly black; lower surface of body much darker (than in D), more glossy and of a still more uniform brown; eye-patch considerably more extended, but not yet snowy white; nostrils more circular; iris cleanly white. Feet: outer side pinkish vinaceous, sometimes brighter or between rose pink and peach blossom pink; the inner side as in the adult male.

Other specimens, shot Oct. 23 and 27, are similar to these, but the lower surface of the body is of a lighter and less rich brown; the eye-patch more nearly perfect.

F.³ Very near maturity; the black (of plumage) almost uniform; a few scapulars and interscapulars tipped with brown; lower surface of body inclining still to brown (blackish brown); eye-patch nearly or quite perfect; eye continuously edged with white; speculum not yet immaculate, but tips of greater coverts practically clean, and only a few of the secondaries showing duskiness. Bill (fig. 10) more cleanly bright than before, the black only partially separating the white from the side color and less obtrusive elsewhere. Feet: outer side pale (somewhat 'milky') wine-purple, inclining to a warmer or orange tint here and there; inner side rufous or between rufous and vinaceous rufous, and sometimes brighter, or of a slightly pinkish shade of coral red.

One of these nearly mature males, though so nearly all black, is conspicuously speckled with pale buff on the front of the head (or forehead, forepart of crown, and lores), and the knob of the bill (fig. 11) is also somewhat different from any of the others.

In the case of a number of drakes shot Oct. 18 and 21, which are still more fully perfected than the above, the lower surface of the body inclines to gray instead of brown, and is scatteringly flecked with dull white.

Among other interesting facts in this development is the turning light of certain portions while passing from one phase to another. For example: the plumage of the male, which is at first (A) almost uniformly blackish brown, does not mature as one might expect it to do, by growing steadily blacker and

¹ These narrow lines of black (which disappear as the bird matures) are mentioned in one of our ornithological works as characteristic of the bill of *O. fusca*, and as not found on the bill of *O. deglandi*.

² Described from specimens killed April 21 and May 3.

³ Described from specimens killed April 21 and May 3 and 4.

blacker, or nearer and nearer in appearance to that of the adult, but passes through lighter, less uniform, more and more variegated stages (B and C), and even after steadyng down to more simple, more readily comprehended methods of advance (D, E and F), certain portions continue to progress in the same manner as before. Note the description of those males "shot Oct. 23 and 27" which, though placed under E, are intermediate between E and F; the lower plumage, it will be seen, is lighter than in E proper, from which the birds are emerging, and lighter still than the phase F which they are entering. Mark also the conspicuously light forehead and lores of one of those nearly all black, nearly mature males F, and the scattering flecks of white on the still more fully perfected drakes "shot Oct. 18 and 21."

And not in the plumage alone is this uneven course pursued, the coloration of the male's feet is advanced in a similar manner. The outer side of the tarsi and toes, which are at first (A) chocolate color, change to what I describe under E as "between rose pink and peach blossom pink," prior to taking on the less light and less bright "wine purple" of maturity. Though I have used only the male bird in this illustration, the plumage of the female is developed in a like manner.

One reason, perhaps, why the bill of the adult female has always been described as wholly dusky, that no mention has been made of the pink patch at the side of the bill, etc., is that such specimens have been commonly regarded as immature males, whose beaks were just beginning to show the shape and color of maturity. Another reason (furnishing a better excuse) is that comparatively few fully adult birds are secured. A very large majority of the males and females that are shot are immature. The young are not only far more numerous, but they are decidedly less wary, and when hit are oftener killed.

That immaturity has been commonly mistaken for maturity is evinced by most of the descriptions. I copy a few suggestive bits from some of the attempts which have been made to describe the adult female's plumage. "Forehead and cheeks white; under the eye dull brownish; behind that, a large oval spot of white, . . . belly brownish white" (*Wilson*). "Two whitish spots on each side of the head, one near the base of the upper mandible, the other behind the eye" (*Audubon*). Other and

later writers describe it as similarly youthful in appearance; a "whitish patch on the side of the head behind the eye"; plumage of the body "pale grayish below," etc. One work describes it correctly enough as having practically "no white about the head," but includes a contradictory picture which shows very positively both the loral and auricular patches.

Though—with a single exception to which I allude under phase F—each figure in the accompanying plate is fairly representative of all the individuals of the phase to which it is ascribed, each is taken from a single bird: no one of them is in any degree a composite picture. They are life size, and I have done my utmost to render them accurate, using only fresh specimens as models.

As I wished to give shaded drawings of the bills of the adult female and immature male D, I have included a plain outline also of each for easier comparison with the other unshaded drawings. Some change is discernable in the shape of the bill, even within two or three days after the bird is shot, and before many months have elapsed its original form (like its original color) can only be guessed at. It is in the shape and size of the nostrils, perhaps, that the alteration is most marked. They are much less open, much smaller, terminate acutely at the front, are now far from circular in the adult and nearly adult male, and no longer elliptical in the female and young.

When the bill of a perfectly fresh specimen is measured, its width at widest part is greater than the distance from the nostril to the tip, while in an old skin the width is frequently less than the distance from nostril to tip, and the lateral outlines of the maxilla—which in life are strongly convex—have become (by uneven shrinkage) much more nearly parallel.

I have been greatly impressed, while studying these birds in and out of doors, by the differences between the color of the plumages when fresh and the appearance of the same plumages on dried skins six months or more later. I can now only speak positively about the skins of *deglandi* and *perspicillata*, but I presume that similar changes occur in *americana* and numerous other species. I am not referring to the black of the male which in time becomes somewhat less intense, less glossy, but to the brown plumages of the female and young. These

become less uniform, very decidedly lighter, and materially different in other respects, tending positively to tawny in some cases, to gray in others, where neither tawny nor gray was visible before; and the light edging at the ends of the feathers not only grows lighter, but is extended farther up upon the feather. In most cases, the beginning of such changes is discoverable by close comparison, when a skin is no more than a month old, and it is not too much to say that in a year's time very little or none of the original color is left. These post-mortem deviations seem to be more rapid and radical in such markedly transitional phases as immature and moulting male C, and certain plumages of *perspicillata* of which I will speak at another time.

Though the European and Asiatic White-winged Scoters (*fusca* and *stejnegeri*) are not "our" Scoters, a partial description of them may be useful here. I have never seen the foreign birds alive or in any degree fresh, but through the courtesy of Mr. Ridgway I have been able to carefully examine the skins representing them in the National Museum. That collection, though pretty well supplied with specimens of *stejnegeri*, unfortunately contains but five of *fusca*.

I have compared our New England specimens of *deglandi* with those taken in Alaska and find not the shadow of a difference between them.

The separation of the three species is thus far based almost wholly on the shape of the bill and the distance between front edge of feathering and nostrils. That *fusca*, *deglandi* and *stejnegeri* are at least a good deal alike in size, plumage and general proportions no one can doubt.

I will first describe the bill of *fusca* showing at the same time wherein it is similar to or dissimilar from those of the American and Asiatic species. When no mention is made of the female, my notes may be regarded as referring wholly to the adult or nearly adult male.

Oidemia fusca.

Distance between nostril and loral feathering considerably greater—at nearest point—than in *deglandi* or *stejnegeri* (not so wide, however, as length of nostril), this distinction applying also to the female. Maxilla

swollen noticeably at sides of base between corner of mouth and nostril, the bill differing in this respect from those of *deglandi* and *stejnegeri*. Though an approximation to this protuberance is sometimes observable in the other species, it is never so prominent and bunch-like. Lateral edges of maxilla somewhat more nearly parallel than in *deglandi*, and about as in *stejnegeri*. Basal part of culmen noticeably elevated, but not nearly so prominently as in *deglandi*, and incomparably less than in *stejnegeri*, rising very gradually and evenly over the nostrils. Anterior extremities of frontal and loral feathering (in both male and female) about equally advanced.¹

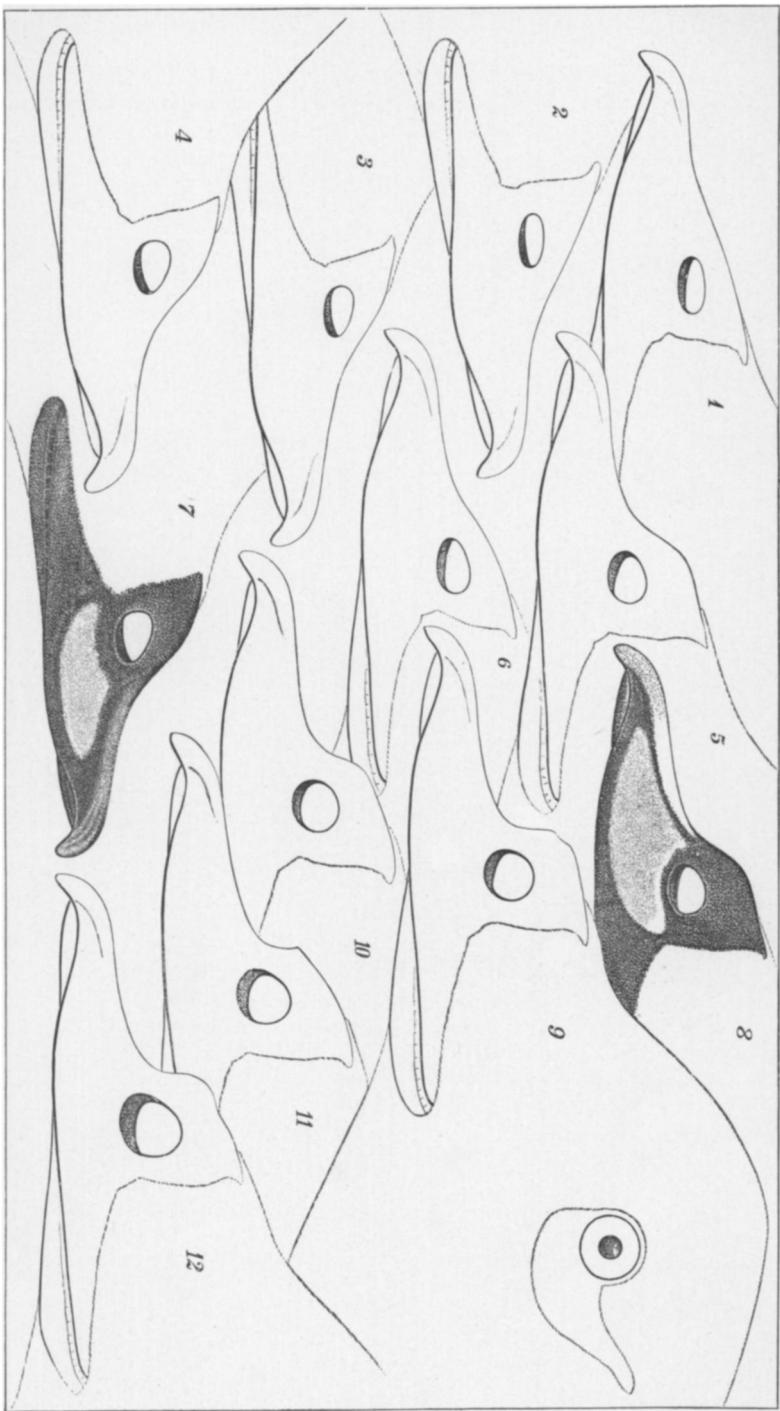
Oidemia stejnegeri.

Average distance between nostril and loral feathering,—at nearest point,—in both male and female, a trifle greater than in *deglandi*. Frontal feathering seldom, perhaps never, advanced so far forward as the loral. Knob enormously developed—over once and a half as high above nostrils as the highest knob of *deglandi*, its abruptly rising front decidedly concave, the top jutting forward suddenly and forming an overhanging, very conspicuous, bluntly pointed projection; the culmen somewhat higher at the top of this overhanging portion than at frontal feathers.

The knobs vary greatly even among drakes which at first sight are seemingly mature. Closer inspection shows us that when the front of the knob is not deeply concave, the bird is not fully developed, the basal black is continued far forward, shows more or less all along the lateral edges, and in positive lines running from the black in front of the nostrils to the sides of the nail. (See fig. 8 in which similar lines are indicated for *deglandi*.) On the other hand, when the front face of the knob is deeply concave and its top juts conspicuously to the front, the bill is broadly light, the black lines are absent (or very faintly and brokenly indicated), the black is pushed but a short distance in front of the nostrils, and shows but slightly along the lateral edges. Probably none of the color is at all as it looked in life; but the black marking is distinct enough fully to support what I have said.

Though the bill passes through innumerable shapes while developing from that of early youth, the culminal line of which is similar to that of fig. 1, none of its late phases closely resemble any of those exhibited by *deglandi*.

¹ I am unable to judge in the case of these bills in regard to the original amount of black and its distribution, as they have been artificially colored. Though the artist who did the work is peculiarly accurate, he was forced to obtain his knowledge of the coloration from very unsatisfactory pictures and descriptions.



BILLS OF *OIDEMIA DEGLANDI*.

(The males facing to the left, the females to the right.)